

Space Weather Forecast

Issued on Sunday, 24 December 2023 at 01:10 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Chance of isolated Moderate flares throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with eight sunspot regions on the visible disc. An active sunspot has rotated across the western limb. Two sunspots evolved significantly complex magnetic structure, but this only lasted briefly before fading back to a bipolar structure. A large region in the southern hemisphere is mature and stable, showing no notable signs of activity. No Earth-directed CMEs have been observed on available imagery.

Solar Wind / Geomagnetic Activity: Solar wind speeds have been at ambient levels in a benign solar wind environment. Total magnetic field strength was weak, with the important north-south component varying weakly. Geomagnetic activity has been Quiet

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low activity is forecast, with a slight chance of Moderate activity.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs are forecast. No fast solar winds are expected to connect with the Earth, with solar wind speeds at ambient levels. Geomagnetic activity is forecast to be at Quiet levels throughout.

Energetic Particles / Solar Radiation: There is a slight chance of solar radiation storms, should there be any larger flares on the western side of the Sun.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	1	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	30	30	20	20
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)